

REMARKS/ARGUMENTS

Applicants would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action. Favorable reconsideration of the application is requested in view of the remarks and amendments made herein.

Claims 1-2, 5-6, 9-11, and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-118862 (Akira) in view of U.S. 6,709,543 (Kurosawa) and either U.S. 2001/0029088 (Odajima et al.) or U.S. 2003/0070517 (Tsujiimoto). Traversal of this rejection is made for at least the following reasons. The Examiner is relying upon Akira to show that the exfoliation step would occur from the vacuum force alone, Kurosawa to show the use of a thin chip, and one of Odajima or Tsujiimoto to show removal of tape from the chip at an angle. However, the proposed modification of Akira would change its principle operation. The operation of Akira relies on two principal steps: 1) applying a vacuum suction to the adhesive sheet in order to pull the sheet away from the chip, thereby introducing air between the adhesive sheet and the chip; and then 2) moving the stage on which the adhesive sheet is provided on so that air is introduced between the sheet and the chip across the entire area of the chip. There is nothing within Akira that discloses, suggests, or otherwise renders obvious the use of a vacuum force alone to remove an adhesive layer from a chip. In fact, Akira states that without the stage movement, the chip cannot be properly removed from the adhesive sheet.

Not only do the remaining references fail to make up for this deficiency, but when combined with Akira in the manner suggested, the Akira invention becomes fundamentally changed and inoperable. For instance, using a thin chip as shown in Kurosawa would damage the chip. The chip would be bent such that a portion of the chip would be pulled into the suction holes of Akira, then upon movement of the stage, the chip would be dragged back up to the stage surface, thereby

increasing the possibility of cracks in the chip. Further, if this thin chip were then positioned such that a corner portion was positioned over a suction hole, as suggested by the Examiner, the entire corner would be pulled under the chip upon movement of the stage thereby damaging the chip.

In the present case, the Examiner has merely found references in which some of the components of the claimed invention are present. However, proof that the separate elements exist in the prior art is inadequate to establish obviousness. *Arkie Lures Inc. v. Gene Larew Tackle Inc.*, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997). In fact, the Federal Circuit has consistently held that

... ‘*virtually all [inventions] are combinations of old elements.*’ Therefore an examiner may often find every element of a claimed invention in the prior art. *If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.* Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. *Such an approach would be ‘an illogical and inappropriate process by which to determine patentability.’* *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998) (*citations omitted*).

Not only has the Examiner failed to provide a reference in which a chip has been exfoliated from an adhesive layer due to bend deformation using only a vacuum suction force, but the Examiner has also failed to show any reason why a person of ordinary skill in the art would have known to arrive at the claimed invention based upon the cited references. Akria discloses that vacuum suction in combination with movement of the stage must be employed to effectively remove the chip from the adhesive layer. Kurosawa discloses that vacuum suction in combination with thrust pins must be employed to effectively remove the chip from the adhesive layer. And Odajima and Tsujimoto are directed to the use of peeling operation in which no vacuum suction force is used. Based on these

references, the Examiner has failed to show reasons that the skilled artisan, confronted with same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. In fact, there is nothing within the cited references that would have suggested or otherwise made known to one skilled in the art that the claimed invention was even possible.

The Examiner states that when thin chips are used as suggested by Kurosawa in Akira, the chip would be bent by the vacuum force only. However, although Kurosawa adopts the thin chip, the thrust pins are required to exfoliate the chip by vacuum force. Therefore, even if thin chips are used in Akira, some way other than the vacuum force must be required, that is, the stage movement must be required in Akira. If the Examiner insists that the exfoliation step is done by the vacuum force only, it is requested that the Examiner show evidence of this.

The inventors of the present application discovered a method that simplifies a chip exfoliation operation, thereby significantly reducing costs associated with the process. If the claimed process is obvious, the complicated, expensive, and chip-damaging processes existing in the industry, as disclosed in the prior art, would not exist today.

Regarding claim 5, it has been amended to include the limitations of previously added claim 14, which has been cancelled. The Examiner contends that the suction grooves of Akira are linear in that they extend downward linearly from the surface. However, the claim requires that the linear grooves include at least one hole in the bottom surface of the groove. Accordingly, the suction hole of Akira cannot be interpreted as being equivalent to the claimed groove.

For at least the reasons discussed above, the cited references fail to disclose, teach, suggest, or otherwise render obvious the claimed semiconductor pick-up method. Accordingly withdrawal of the present rejection and allowance of the claims are requested.

Claims 12-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Akira in view of Kurosawa and either Odajima or Tsujimoto and further in view of Elliott et al. (U.S. 6,032,997). Traversal of this rejection is made for at least the following reasons. Claim 13 depends from claim 5, which is believed to be allowable over Akira, Kurosawa and either Odajima or Tsujimoto for the above reasons. The addition of Elliott does not make up for these reasons. Claims 12 and 14-15 were cancelled. Accordingly, withdrawal of this rejection is requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. NGB-35857.

Respectfully submitted,
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